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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/590,438	08/23/2006	Tsuneo Nakata	P/2054-140	8750

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EXAMINER	
NGUYEN, DUC M	

ART UNIT	PAPER NUMBER
2618	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/590,438	NAKATA ET AL.	
	Examiner	Art Unit	
	DUC M. NGUYEN	2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 March 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *23-40* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *23-40* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This action is in response to applicant's response filed on 3/12/09. Claims 23-40 are now pending in the present application. **This action is made final**.

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "means for detecting a transmission/reception state of each antenna, and means for performing a hand-over process based upon difference of said transmission/reception state of each of said antennas" as recited in claims 23, 28, 33 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Similarly, "the handoff process" as recited in claims 38, 39, 40 must be shown (i.e, details of a hand-off procedure) or the feature(s) canceled from the claim(s).

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for

consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 23-37 are objected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- As to claims 23, 28, 33, “means for detecting” should be changed to “detecting” and “means for performing” should be changed to “performing” in order to eliminate the mean plus function limitation that invokes 35 U.S.C. 112, sixth paragraph because the written description fails to disclose the corresponding structure, material, or acts for the claimed function.

- Claims 23, 28, 33 recite the limitation "said transmission/reception **state**" in the last paragraph/sentence of the claims. There is insufficient antecedent basis for this limitation in the claim. Accordingly, “state” should be changed to “condition”.

- Claim 38 recites the limitation "said transmission/reception **state**" in the last paragraph/sentence of the claim. There is insufficient antecedent basis for this limitation in the claim. Accordingly, it is suggested that the claim be amended as follow,

"... performing a hand-over process based upon difference of **radio wave intensity(ies) of** said transmission/reception **means** of each of said antennas."

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such **full, clear, concise, and exact terms** as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims **23-37** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

As to claims 23, 28, 33, the claims recite a limitation of "means for detecting a transmission/reception condition of each antenna, and means for performing a hand-over process based upon **difference** of said transmission/reception state of each of said antennas". However, this limitation contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains,

or with which it is most nearly connected, to make and/or use the invention. For examples,

Fig. 4 shows two antennas (101-1, 101-2) and three base stations (102-1, 102-2, 102-3), then "means for detecting a transmission/reception state of each antenna" would comprise

X11 : signal measurement between antenna 101-1 and base station 102-1,

X12 : signal measurement between antenna 101-1 and base station 102-2,

X13 : signal measurement between antenna 101-1 and base station 102-3,

X21 : signal measurement between antenna 101-2 and base station 102-1,

X22 : signal measurement between antenna 101-2 and base station 102-2,

X23 : signal measurement between antenna 101-3 and base station 102-3,

and "means for performing a hand-over process based upon difference of said transmission/reception state of each of said antennas" would comprise several differences (Xik – Xjl), where i=1, 2; j=1, 2; k=1,2, 3; and l=1,2,3; this would lead to the question of which **difference** would be used for performing a hand-over process based upon **difference** of said transmission/reception state of each of said antennas ? and subsequently, how would the hand-off process be done specifically ? Accordingly, an amended specification and a new drawing showing a flow chart that would outline/detail all of the above procedures (i.e, step by step) would be required in order to overcome the 112 rejection.

Claim Rejections - 35 USC 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims **23-40** are rejected under 35 U.S.C. 103(a) as being unpatentable by **Furukawa** et al (US **6,108,548**) in view of **Cvetkovic** et al (US **6,236,844**).

Regarding claims **23-24**, **Furukawa** teaches a method for performing a hand-off in a mobile device comprising two antenna, wherein each antenna would communicate with a plurality of base stations independently (see the whole document), comprising:

a communication means for simultaneously utilizing said two or more antennas, thereby to simultaneously make communication with a plurality of the base stations (see col. 7, lines 58-65, step [S24]);

means for detecting a transmission/reception state of each antenna (see [S20], [S31]-[S33]); and

means for performing a hand-over process based upon difference of said transmission/reception state of each of said antennas (see [S34]-[S47]), which would obviously involve differences of the reception levels (or in another word, the antenna with the maximum/strongest signal reception quality would be selected).

Here, although **Furukawa** is silent with a relative distant between antennas, one skilled in the art would recognize that the antennas could be spaced apart as far as possible as disclosed by **Cvetkovic** (see Fig. 1, col. 2, lines 29-43), for minimizing multipath events. Therefore, by simply applying **Furukawa** to the environment in **Cvetkovic** where the mobile device is a vehicle with two antennas, one in the front and the other in the back of the vehicle, **Furukawa** as modified would teach the claimed "a mobile device having wireless antennas in a wireless communication network having a plurality of base stations, characterized in including: two or more antennas installed separately at an extent that the base station of which radio wave intensity becomes maximum differs antenna by antenna in a case where the mobile device has stood still in the vicinity of a boundary of wireless areas" when the vehicle is in a soft handover area.

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify **Furukawa** for providing a mobile device (i.e, a vehicle) with two far apart antennas as suggested by **Cvetkovic**, thereby providing a method and apparatus as claimed since it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations *Ex parte Masham* 2 USPQ2d 1647 1987).

Regarding claims **25-26**, the claims are rejected for the same reason as set forth in claims 23-24 above. In addition, it would have been obvious to one skilled in the art at the time the invention was made to further modify Furukawa for applying Furukawa's

teaching to a train or ship as claimed and would work equally well, noting that it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations *Ex parte Masham* 2 USPQ2d 1647 1987).

Regarding claim **27**, the claim is rejected for the same reason as set forth in claims 23-24 above. In addition, it is clear that **Furukawa** would teach in a case where a set of base stations with which communication is possible via the antenna differ antenna by antenna, making communication with respective separate base stations as claimed (see Furukawa, col. 7, lines 22-36, 58-65, noting for the **diversity** and **independent** features).

Regarding claims **28-40**, the claims are interpreted and rejected for the same reason as set forth in claims 23-27 above (see also Furukawa, Figs. 5-6 and related disclosures).

Response to Arguments

7. Applicant's arguments filed 3/12/09 have been fully considered but they are not persuasive.

In the Remark, Applicant contends that

Applicant responds herein to the Office Action dated November 12, 2008. A Petition for Extension of Time (one month) and the fee therefor are submitted herewith.
Preliminarily, applicant notes the objection to the drawings and, specifically, the request that a drawing be supplied which shows the means for detecting the transmission/reception state of the process and means for performing the hand-over process based on the difference of the transmission reception state of each of the antennas.
It is believed, and respectfully submitted, that the basic notion of testing a signal intensity or quality (e.g., the error rate of the data packets being transmitted) is so well known in the art that it does not require specific description. In the electronic art, measuring signal intensity (magnitude) or bit error rate is as basic as measuring the temperature or strength of a material in the mechanical arts.

Therefore, applicant submits that, with the additional Fig. 2A herein and the brief reference thereof, the objection to the drawings should be withdrawn.

In response, claim element “means for detecting/performing…” is a means (or step) plus function limitation that invokes 35 U.S.C. 112, sixth paragraph. However, the written description fails to disclose the corresponding structure, material, or acts for the claimed function. Therefore, in order to remove the object to the drawing, it is suggested that the claims (23, 28, 33) be amended so that the claim limitation will no longer be a means (or step) plus function limitation under 35 U.S.C. 112, sixth paragraph. For examples, delete “means for” terminology.

Applicant further contends that

The foregoing remarks are equally applicable to the rejection of claims 23-40 under the first paragraph of 35 U.S.C. §112. The notion of what the term "state" means in the context of the present invention should not be questioned as being either indefinite or vague. The term "state" of the antenna signals can refer, in the most obvious form thereof, to the signal strength, as clearly described in the specification which speaks of the issue of zones where no signal at all is sensed, or where the signals for the two or more antennas are compared and the comparison is clearly described in terms of the signal strength. In addition, the specification refers to the "state" as referring to the quality of the signals, for example, its error rate or the frequency or bandwidth utilization efficiency. See paragraphs [0007] and [0008] of the instant specification. See, also, paragraphs [0031], [0032], etc. In fact, the original version of claim 1 speaks of the radio wave intensity becoming a maximum. Therefore, the original specification fully supports and defines the term "state", as used in the instant claims. A synonym of "state" as used here is the term "condition", now used in the claims. Reconsideration and withdrawal of the rejection under 35 U.S.C. § 112 is, therefore, respectfully solicited.

In response, the 112 rejection regarding “state” or “condition” terminology has been withdrawn. However, for clarification purpose, it is suggested that the “signal quality” or “radio wave intensity” be used. Further, since it is not clear on the “difference” as outlined in the above 112 first rejection, the rejection is maintained. Accordingly, it is suggested that the “strongest wave intensity” limitation be utilized in the claims.

Applicant further contends that

Substantively, claims 23-40 are stated to be obvious over Furukawa (6,108,548), in view of Cvetkovic (6,236,844). Reconsideration is requested in view of the amendments to the claims herein and the following remarks.
Moving platforms, in the form of either fast moving trains or automobiles or even large ships, present special problems, as discussed in the introductory pages of the instant application.
At the same time, such vehicles, as discovered by the instant applicant, afford the possibility of positioning several antennas in spaced relations to one another. In the instant claims, the antennas are spaced sufficiently apart that they enable discerning measurable differences in the signal intensity or quality received from a particular base station, based on the antenna's relative locations on the vehicle. The invention utilizes this aspect to form a more streamlined, soft hand-over process which solves several problems of the prior art, including the situation with dead zone regions, or any delay in handing over the mobile station from one base station to another.
Thus, independent claim 23 is directed to a mobile device having wireless antennas. Specifically, there are "two or more antennas installed spacially apart, such that the base station of which radio wave intensity becomes a maximum differs antenna by antenna, where the mobile device is located in the vicinity of a boundary of wireless areas".
Claim 1 (should be 23) further includes a facility which simultaneously utilizes the two antennas to simultaneously communicate with a plural number of base stations and a detector detects a transmission/reception "state" or condition of each antenna and, based on the state of transmission/reception which can be the "radio wave intensity", and engages in a hand-over process based upon a difference of the state of each of the antennas.
The basic functionality of a hand-over process is **well known** in the industry and did not require any specific teaching in the present application.
Turning the references, it is respectfully submitted that nothing in the primary Furukawa reference teaches spaced antennas operable with a facility which uses the signals from the two antennas to determine the precise point of switching a mobile device between two base stations. Rather, the two antennas in this primary reference are simply used to save time in the hand-over process by engaging a downstream base station and preparing the two systems for the point where a switchover will occur. But no signal intensity or signal quality are being tested with the two antennas to determine the spatial point where such a switchover should take place. When read and understood in the context of its true teachings, this reference does not provide any teaching which go to the heart of the concept of the various systems and methods recited by the claims of the present application.

In response, the examiner asserts that the limitation “signal quality are being tested with the two antennas to determine the spatial point where such a switchover should take place” is a **well known** feature of an **well known** handover process. Specifically, in a simplest form, during a handover process, the selection would select the antenna providing the strongest signal reception quality, this would result in a spatial point where such a switchover should take place. Therefore, **Furukawa** would obviously, if not implicitly, teach such well known feature in a handover process.

Further, in response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., "signal quality are being tested with the two antennas to determine the spatial point where such a switchover should take place") are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Applicant further contends that

> The secondary Cvetkovic reference addresses a specific problem which ensues from poor reception of signals which sometimes result from phenomena such as "short time delay multi- path", and "long time delay multi-path" which can result in signals that are difficult to read.
> Cvetkovic teaches that by using two spaced apart antennas, the quality of the signal can be improved by, in effect, subtracting from them the undesired reflective signals or the signal artifacts. But, again, this reference, like the primary Furukawa reference, does not teach a system or methodology which enables the finding of the precise spacial location of switching over from one base station to another based, in effect, on the use of spaced apart antennas which provide far more accurate measures of the relative position of the mobile device relative to the base stations.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., "signal quality are being tested with the two antennas to determine the spatial point where such a switchover should take place") are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Further, just for the sake of arguments, Furukawa as modified in view of Cvetkovic would teach two spaced apart antennas, Applicant is invited to provide

reasons that would explain why the claimed hand-over process (**well known** in the art) would provide the switching point that the hand-over process in Furukawa would not.

For foregoing reasons, the examiner believes that the pending claims are not allowable over the cited prior art.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9. **Any response to this final action should be mailed to:**

Box A.F.

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(571) 273-8300 (for **formal** communications intended for entry)

(571)-273-7893 (for informal or **draft** communications).

Hand-delivered responses should be brought to Customer Service Window, Randolph Building, 401 Dulany Street, Alexandria, VA 22314.

Any inquiry concerning this communication or communications from the examiner should be directed to Duc M. Nguyen whose telephone number is (571) 272-7893, Monday-Thursday (9:00 AM - 5:00 PM).

Or to Nay Maung (Supervisor) whose telephone number is (571) 272-7882.

/Duc M. Nguyen/

Primary Examiner, Art Unit 2618

Mar 27, 2009